

Factsheet **IMPACTS OF HYDRAULIC FRACKING**¹ 19 May 2020 – vs 1 **AVOIDING THE REAL ISSUES WITH CSG**

About the research project

The Gas Industry Social and Environmental Research Alliance (GISERA)² has commissioned the CSIRO³ to conduct an investigation into “*Potential impacts of hydraulic fracking on water and soil near well sites*”. In the Combabula Gasfield near Roma, three wells were sampled for water and soil. In the Condabri Gasfield near Miles three wells were sampled for water and soil, and three for soil only. Both are Origin Energy sites.

GISERA’s Board is made up by 5 industry representatives, 3 from CSIRO and 1 from government. Origin Energy has a board member, contributed 74% or \$245,670 to phase one, and 61% or \$1.28 million to phase 2, provided both sites, had two staff members on the project committee and carried out some research activities for safety reasons.

Commissioning and funding bodies set the limits of a research project. These limits are major determinants of a **project’s relevance to society** as a whole.

Project methodology

113 water samples were taken from Hydraulic Fracturing (HF) fluids used, flowback and produced water, Water Treatment Facility waters, surface water from creeks, and three nearby domestic and stock groundwater bores. 36 composite soils samples were taken from around the wellheads and nearby undisturbed sites and analysed.

Analyses of chemicals and minerals were done by CSIRO and the Australian Nuclear Science and Technology Organisation, leading to 70 pages of detailed results.

Extract of main findings

- Water composition (three wells) was dominated by chemicals from the coal seams. Nine chemicals⁴ were higher than Australian default guideline values for freshwater.
- Sampling of groundwater bores (three) did not show impacts of CSG on water quality.
- Water samples from an adjacent creek showed no signs of contamination from CSG activities, but showed signs from discharges by an upstream sewage treatment works.
- Soil sampling (six sites) did not show any contamination that could be associated with HF operations, as no spills of HF chemicals had been reported.
- Treatment of CSG waters lowered CSG-related chemicals to below regulatory levels.
- The resulting concentrated brines showed the highest concentrations of chemicals.

Inbuilt limits negating the project’s relevance to society¹ – pages 7 and 8.

Long-term impacts of hydraulic stimulation were not covered due to time restraints.

Comment: A one-off six-months study is a snapshot. The effects of Hydraulic Fracking activities accumulate with repeat activities. Wells may be fracked up to 10 times.

Flowback water and well flushing waters were not included as they were collected and transported offsite to a licenced waste treatment facility for treatment.

Comment: This limitation excludes a major long-term consequence of the CSG industry that has potentially catastrophic outcomes for the whole Murray Darling system. There are currently about 39 ponds holding flowback waters from 6,800 wells, ‘*pending treatment*’.

¹‘Assessing the potential impacts of hydraulic fracturing on water and soil quality in the vicinity of well sites in the Surat Basin, Queensland Project’ W12 Final report March 2020

<https://gisera.csiro.au/wp-content/uploads/2020/04/Water-12-Milestone-7-final-report.pdf>

² GISERA’s current members are: Australia Pacific LNG, QGC, Santos, Origin Energy, Pangea Resources and CSIRO

³ Commonwealth Scientific and Industrial Research Organisation

⁴ Ammonia, boron, chromium, copper, manganese, lead, nickel, silver and zinc.

That treatment was meant to ‘*produce salt for a commercial market*’. Neither treatment nor markets exist. The ponds are now concentrating salt through evaporation. The current ‘*solution*’ is to store that salt-contaminated mud together with the brine from reverse osmosis and other waste at a facility at Baking Board near Chinchilla⁵.

This facility has approval for indefinite storage of 15 million tonnes of ‘*salt*’, mostly sodium bicarbonate but also the heavy metals mentioned in the report, radio-active waste and BTEX. The salt is stored using plastic liners, on dispersible clay soils, on a flood plain, next to Stockyard creek which runs into the Condamine and the Darling river. Permission has been granted recently to store waste from Origin’s CSG wells in the NT on a similar site near Miles downstream from Chinchilla. The NSW CSG industry will add their bit.

Groundwater contamination with methane was not included. Methane is subject of other investigations conducted by GISERA, and

Impacts of HF on human health were not included as the study was not designed to determine the impacts of HF on human health.

Comment: The whole purpose of hydraulic fracking is to increase the flow of CSG of which methane is a major component. Methane escapes underground through the soil into water and air, during storage and transport or is vented on purpose. Fugitive methane from fracking is believed to be responsible for much of the recent rise in green-house gasses.⁶ Methane’s effects on human and animal health are well documented.

Wells fracked vertically

Comment: The wells were fracked vertically and the data cannot be transferred to horizontal fracking. Horizontal fracking can extend up to 2 km in all directions. This greatly increases the amount of chemicals, either from HF fluids or originating in the coal seams.

National or regional assessment of HF impacts - the authors state that the study was not intended to be a national or regional assessment.

Comment: The authors are correct. The current number of operating wells is about 6,800 (not 19,000 as stated in the report) and is projected to increase to about 21,000⁷-page 17. The CSG industry could operate till 2060⁴ Page 15 - Figure 7.3. The sample size is extremely small (<0.01%), conditions differ widely across Australia and chemicals used in fracking are many and their uses vary greatly. The study is relevant to one very small area only.

Overall comments

The study appears to be carefully ‘ring-fenced’ to exclude any acknowledgement of the major issues caused by the CSG industry: salt build-up and methane. These are the result of cumulative effects of thousands of wells over many years. The study isolates one activity, hydraulic fracking, from a very complex production system and looks at it for only six months.

As long as GISERA is in control of a large amount of Australia’s research budget in the CSG area, critical issues are unlikely to be researched. Any description by GISERA of the study as ‘comprehensive’ and implying that the CSG industry is more or less ‘harmless’ is clearly misleading and self-serving. The study is not comprehensive nor is the industry harmless. This study looks like a distraction from the main issues.

⁵ “We Kando Pty Ltd” - <http://www.wekando.com.au>

⁶ Ideas and perspectives: is shale gas a major driver of recent increase in global atmospheric methane?
Robert W Howarth <https://www.biogeosciences.net/16/3033/2019/>

⁷ Underground Water Impact Report Surat CMA 2019
https://www.dnrme.qld.gov.au/_data/assets/pdf_file/0019/1461241/uwir-full-report.pdf